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Evaluation of Rural Water Supply Schemes in Selected Communities in Oke-Ogun Area, Oyo State, Nigeria

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I. Introduction

Successful community management requires that clear ownership of the water systems be defined. Ownership issues lie at the heart of the seeming paradox that communities with long histories of internal water resource management for natural system such as irrigation systems are often not successful at managing water supply systems (Schouten and Moriarty, 2003; Renold,1992). Such is the case in Madagascar, where small streams used for irrigation of lowland rice fields have been sustainably shared amongst communities for food production but most improved water sources have fallen into a state of disrepair. Common to the management of all property resources should be tied to a sense of communal ownership are the inclusion of rules and regulation needed to regulate the behavior of water users and a guide for water committees. Enforcement of rules and regulations is usually the responsibility of the water committees, through the levying of some sort of social sanction of fine (Schouten and Moriarty, 2003; Parry Jones, Reed and Skinner 2001).

Operation and maintenance agreements ensures the longevity and proper running of rural water infrastructure and this could be attained with community. However, in order to ensure proper maintenance of community water supply schemes, there should be a trained local technicians who should have access to tools and spare parts needed to fix the water systems (Lockwood, 2004; UNICEF and WHO, 2000; Narayan 1994; Pretty 1995 and UNDP 2005).

The aim of the study is to assess water supply schemes in selected rural communities in oke-ogun area, Oyo State.The specific objectives of the study are to: (i). examine socio-economic characteristics of respondents in the study area, and (ii) assess the management of water supply schemes in Abare, Ogbooro, Igbope, Iwere-ile communities in the study area.

II. Materials and Methods

a) Brief of the study area

The study was conducted in ten local governments in Oke-Ogun area in Oyo state. Oyo state is located in the south western geo-political zone of Nigeria. It is bounded in the west by Republic of Benin, to the east by Osun State, to the north by Kwara State.

The study area is Oke-Ogun rural settlements in Oyo state. Oke-Ogun is located on latitude 6° 08[1] north of the equator and 3°00[1] east of Greenwich meridian. Oke-Ogun area consist often local government namely: Oorelope, Irepo, Olorunsogo, Saki East and West .Itesiwaju, Atisbo, Iwajowa, Kajola and Iseyin. The people in the study area are mostly Yorubas. The Yoruba who formed majority of the rural community were interviewed with some few ethnic groups such as Hausa, Igbo and Ibariba.

b) Methods of data collections

The study area was grouped into four contiguous zones. Within each zone, a random sampling technique was adopted to select one village The samples frame consist of the following rural settlement namely:, Igbope, Ogbooro, Abare, and Iwere-ile village. Respondents were household heads. A 2,5% sample size of the household heads were chosen for the purpose of questionnaire administration, and respondents were selected on systematic sampling. One household was selected from every five housing units. This was based on the reconnaissance survey. Where the respondent was not available at the first visit, a return visit was made to get in touch with him or her. In the process, a total of 450 respondents were interviewed for the study.

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Data on socio-economic characteristics were obtained in the first part of the questionnaire raising questions about gender, age, marital status, ethnicity, educational qualifications, occupation and income of respondents in the study area.

Information on the sources and characteristics of water supply in the study area was obtained from respondents and confirmed through direct observations and frequency counts of the water sources and schemes in the communities sampled. The sources were mainly the natural ones such as rivers, streams, and ponds and those provided by government, non-governmental organizations, community efforts and inter-aids. The latter focused upon are the ones regarded as schemes. Available water supply facilities in each community was exhaustively enumerated and recorded during the research survey.

c) Methods of data analysis

Data were collected from the field and analyzed using descriptive statistic such as frequency count, percentages and tables to affirm the level of operation and repairs of water facilities in the study area.

III. Results and Discussion

a) Socio-economic characteristics of the respondents

Table 1 reveals the socio-economic characteristics of respondents in the study area. Female respondents (52.9%) were higher than male respondent (47.1%). Literacy rate was average among the respondents with only 49.1% respondent having one form of formal education or the other.

Majority of the respondents were Christians 59.0%, Muslims 36.7%, Traditional herbalist 4.7% and others 2.6%.most of the respondents engaged in farming and trading as their major and minor occupations respectively. For instance 53.4% were farmers, 12.9% Artisan, 18.7% civil servant, 13.9% traders and others (1.1%). The income level of respondents was very low for them to contribute in community development programme in the study area. For instance about 42.1% respondents income fell between 6,000 naira-10,000 naira with the highest being 21,000 naira and above (11.7%). A greater proportion of the population in the study area were Yoruba (79.6%) and are subsistence farmers cultivating maize, yams, cassava and millet. Production is low because most farmers used traditional tools of hand hoe. Hausa constituted about 14.8% and are businessmen and women, the Igbos 4.9% mostly businessmen and women and other tribes of 1.3% such as Ibariba, Idoma, Igala, Fulani and Ghanaians most of who are artisan, craft men and other informal jobs.

b) Assessment of sampled communities in the management of water supply schemes

One rural community was chosen from each of the sampled zones of the study area to assess the management strategies employed for borehole, hand-pump and dam in villages where they are available. Assessment was based on a random sampling of a community in each of the zones included in the study area.

i. *Abare Village*

Abare is located in Itesiwaju local government area in Oyo State with a population of six hundred and eighty people. The village is accessible by a good tarred road which is about fifteen (15) kilometers from Igbojaye. Hand-pump water supply in the village was constructed in 1994 by the local government in the area. At the time of field survey ,the hand -pump were not functioning because of the failure of the local government to repair the faulty hand-pump. The community however did not make any attempt to repair the same due to lack of fund. However, there was no any move by the community to contribute financially for the repair of the hand-pump water facility in Abare village. The villagers therefore depend on alternative sources of water supply in the area such as rivers, ponds and earth dam along streams/rivers course in the area.

ii. *Ogbooro Village*

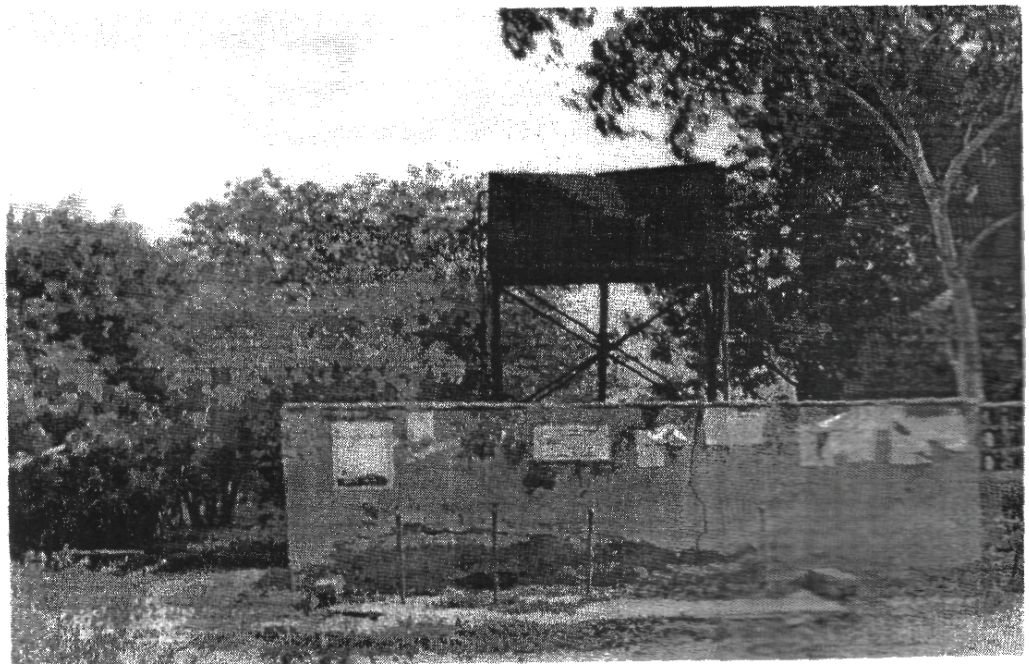
Ogbooro is located in Saki east local government area of Oyo state with a population of five thousand and ten people. Accessibility to the community is through tarred road which is fairly well maintained. There are two types of water facilities in the village - hand-pumps and boreholes. The hand-pumps wells were constructed by the local government while one of the boreholes were constructed by UNICEF-Assisted Water and Sanitation Project (WATSAN) by Oyo state government and two others by private individual for profit making. At the time of data collection, one borehole was functioning in the village and this is owned by an affluent family in the village. The two boreholes had broken down due to negligence by the donor agencies to repair them. There was no village caretaker committee to monitor the repair and maintenance of the boreholes and hand-pump water supply facilities donated by WATSAN. An interview with the opinion leaders in the area revealed that non involvement of rural community members in planning and implementation of water schemes had necessitated the negligence of non repairs.

iii. *Igbope Mllage*

Igbope village is in Oorelope local government with a population of seven thousand, six hundred and forty-eight people. The village is about one kilometers to Igboho town. Hand-pumps and boreholes water supply facilities were found in the village. The hand-pumps were constructed by the local government in the area but the boreholes were donated by WATSAN to the community in order to assist the primary health care centre which is in operation in the village. At the time of field survey, a borehole was not in use due to non repair

of the damaged parts by both the community and the donor agency.

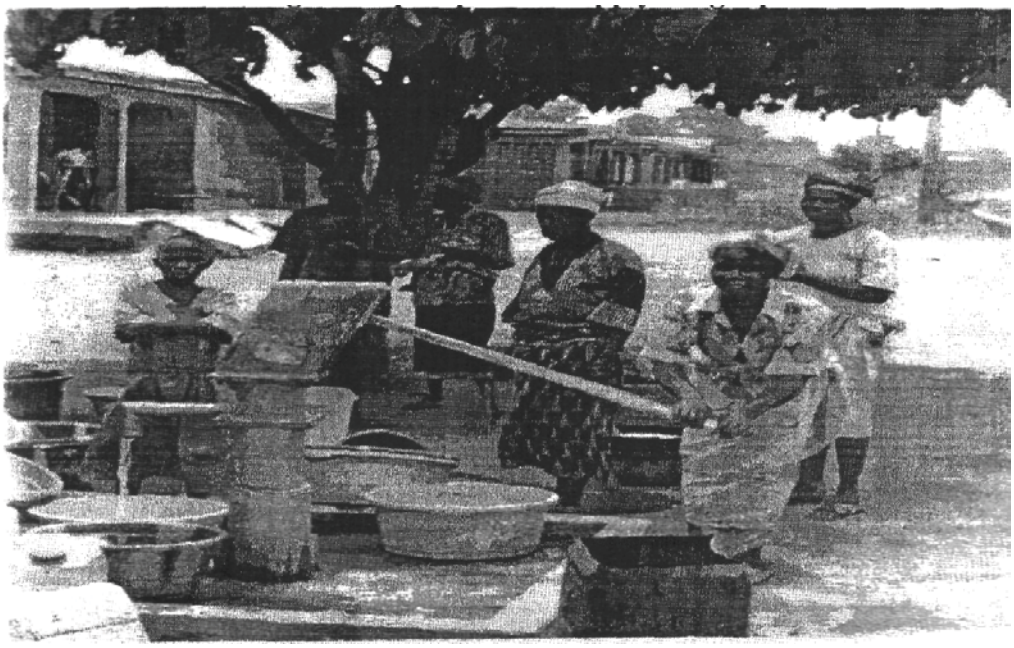
Plate 1: Borehole at Igbope in Oorelope Local Government, Oyo State.



Source : Authors' field survey, (2010).

Three of the hand-pump wells were out of use due to the failure of the local government authority to put all the necessary machinery to repair the water supply systems. The villagers in the area depended on Igboho dam which is about half a kilometer to the village. There were no caretaker committee at the village level to oversee the management of water supply facilities in the village. There was therefore, high demand for water supply on the only hand-pump available in Igbope. **(See plate 2).**

Plate 2 : Functioning Hand pump water supply at Igbope



Source : Authors' field survey, 2010.

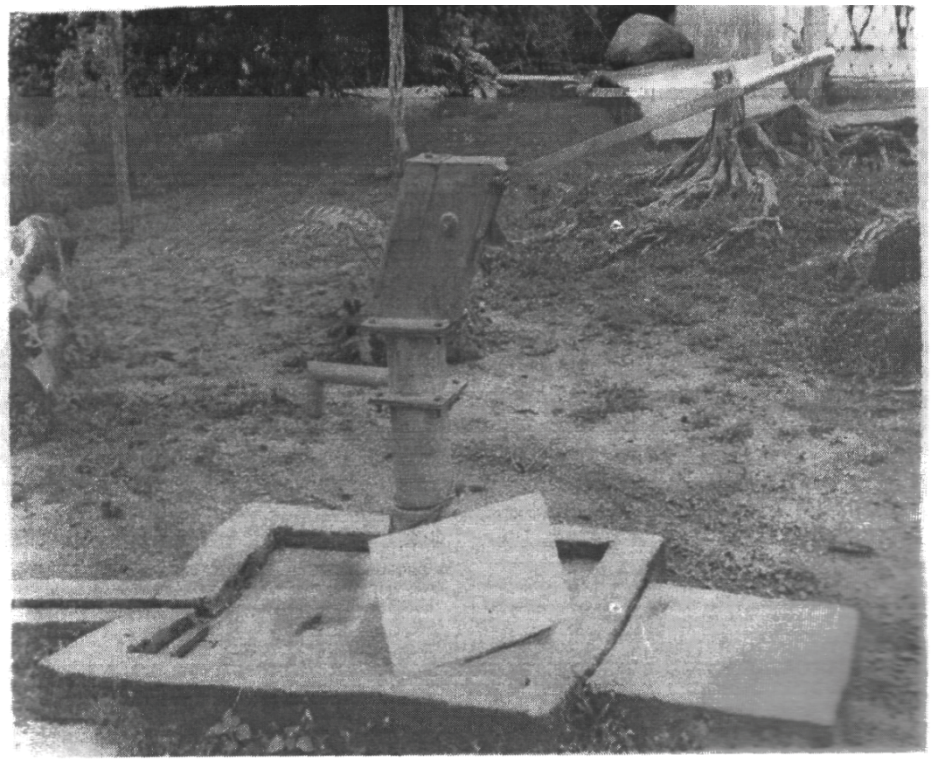
Nevertheless, community members were satisfied with the quality of water supplied from hand-pump since water from the pump look pure, free from insects, debris, animal waste, sticks or leaves and does not smell or taste bad. This corroborates UNDP (2005) findings on community water supply that people are thirsty of clean water. Water obtained from the hand-pump is free from rubbish and does not smell or taste

bad. Water obtain from dam by the rural community of Igbope was used for domestic purpose without any treatment. However, WHO (2000). States that water must undergo some processes of chlorination, purification, sedimentation and other stages of treatment before it is acceptable for usage by community members. Lack of treatment of dam water of this nature can cause ill-health to people.

iv. *Iwere-Ile Village*

Iwere-Ile is located in Iwajowa local government area of Oyo State with population of nine thousand and twenty-four people. There were three boreholes in the settlement and only one was functioning. One of the boreholes was out of use due to non repairs. Also about seven hand pumps were constructed in the area, three of them were functioning at the time of field survey was conducted in the area. (see Plate 3).

Plate 3 : Non-functioning hand pump water supply system at Iwere-ile.



Source : Authors' field survey, (2010).

At the village level, there was no caretaker committee to take care of proper repairs and maintenance of the hand-pumps provided by the local government authority. This has hindered regular supply of water consumption by the community members.

IV. Recommendations

The following recommendations are made towards the sustainability of water supply schemes in the study area.

a) Daily maintenance :

i. Pump operation of water scheme
ii. Pump and base cleanness of the scheme
iii. Waste water drainage of the scheme
iv. Comments of users

b) Weekly maintenance

i. Lubricate moving parts of water scheme
ii. Check tightness of nuts and bolts
iii. Check security of pump on base

c) Monthly maintenance

i. Check output rate of water scheme
ii. Check for condition of concrete base.

No matter what system of management is adopted users must be involved in the planning and management of water schemes so as to prolong the long-term effectiveness of the hand-pump and borehole water facility. The best way to achieve this is by the appointment of a pump caretaker who, after proper training and the supply of a tool kit will carry out the following duties:

d) The pump caretaker duties

i. To carry out inspections daily, weekly and monthly;
ii. To keep records of all checks and work;
iii. To monitor pump output rate;
iv. To keep pump and base clean and clear of refuse;
v. To train people how to use the pump properly;
vi. To make simple repairs and replacements;
vii. To request help for major problems;
viii. To keep a supply of spare parts;
ix. To ensure surplus water is drained away; and
x. To give guidance in health care.

e) The pump caretaker should

i. Be female if culturally or socially acceptable;
ii. Be age 18-35;
iii. Live close to the pump;
iv. Be physically fit and active;
v. Be acceptable to the community;
vi. Be a pump user;
vii. Have own means of support as the pump caretaker job is only part time and
viii. Be self-motivated.

In order to emphasize their responsibility, pump caretakers should receive payment. With respect to the management of dam water schemes in the study area, the following management approaches are important:

i. Keeping spillways clear of debris;
ii. Watching for underling of the spillway outlet or uncontrolled flow beneath or around the spillway;
iii. Preventing trees and bush from growing on earth dams;
iv. Watching for uncontrolled seepage on the dam face around all metal and concrete structures;
v. Eliminating burrowing animals and ant hills and taking measures to prevent their habitation;
vi. Maintaining a healthy stand of grass on earth dams and vegetated spillways to prevent erosion;
vii. Making sure that gates, valves and all water control mechanisms are always operationable and
viii. Watching for any sign of settlement cracking unstable slopes or other slope movement.

1. Local community members should be encouraged to see the rural water supply facilities as their own projects, so as to ensure adequate maintenance and repairs, and to guaranteed the sustainability of the rural water - supply schemes in the study area.
2. Performances of community members in contributing labour and materials for maintenance, constant repairs of water schemes, borehole, and hand- pump wells in particular should be encouraged.
3. The local government councils and other donor agencies in the area should train selected community members to improve their skills and technical know-how to provide local expertise for repairs and maintenance of rural water supply facilities in the study area.
4. Adequate water facilities should be provided by the state, and local government and other donor agencies in view of high population density in the rural community of the study area.
5. The types of rural water supply schemes such as boreholes and hand - pumps should be determined for local community in the study area with active participation of all the stakeholders in the process of planning, and execution of the water projects.

There is a clear need for the communities to rethink their approaches. Good hand-pumps exist and technical solutions are available. Management of hand pumps and boreholes are the real issue for village level operation and management to work.

The capacity building of those responsible for operation and maintenance is essential. They need training in proper management of supplies, spare parts and finances. Community planning and support need to match local people willingness to contribute.

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